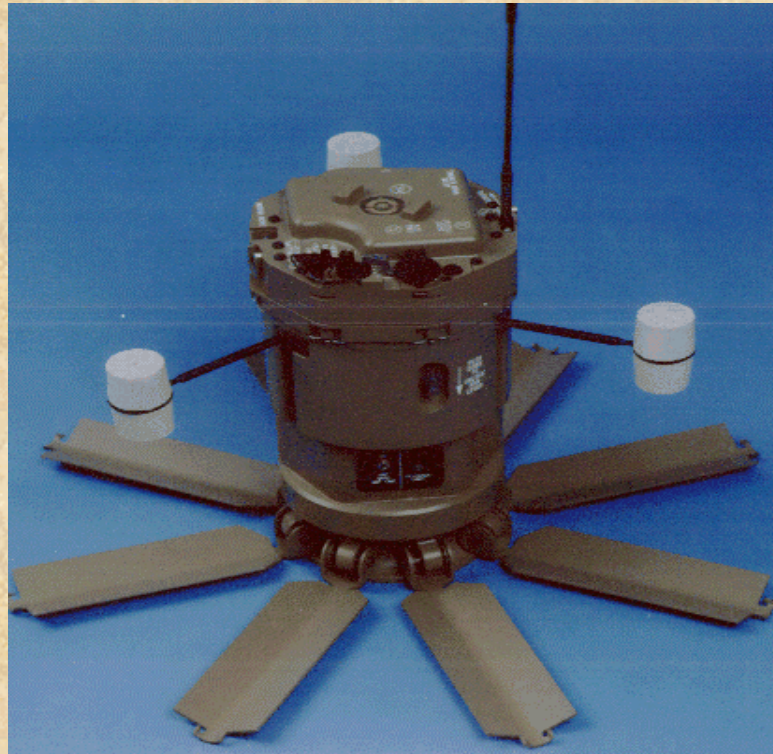
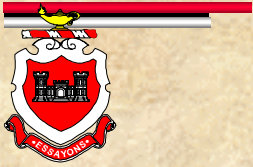




HORNET



WIDE AREA **MUNITION**



EMPLACEMENT AUTHORITY

Long Duration: Self-destruct (S/D) Time is greater than 48 hours	The corps commander may delegate authority to division level, who may further delegate it to brigade level
Short Duration: Self-destruct (S/D) Time of 48 hours or less	The corps commander may delegate authority to division level, who may further delegate it to brigade level, who may further delegate it to task force (TF) level.



GENERAL CHARACTERISTICS

- **Hand emplaced, smart munition which autonomously detects, tracks, classifies, and destroys threat tracked vehicles at distances up to 100 meters.**
- **Electronics suite classifies a vehicle's signature and estimates its range, and if classified a "GO", fires a sublet at the projected closest point of approach.**
- **Sublet contains an infrared sensor and an Explosively Formed Penetrator (EFP) warhead, producing a top attack mobility or catastrophic kill.**



LIMITATIONS

- Hornet **CAN NOT** distinguish between friendly and threat tracked vehicles
- Hornet can only operate on slopes up to 15 degrees (27% slope)
- Hornet can not operate in snow depths greater than 8 inches
- Hornet must be emplaced away from obstacles to ensure a clear shot at a target



DISTANCE FROM OBSTRUCTIONS

$$Y = 2 \text{ TIMES } X$$

Obstruction Height X 2= Distance Away

<u>OBSTRUCTION HT. [ft.]</u>	<u>DISTANCE AWAY [ft.]</u>
3.00	6.50
5.00	10.00
6.50	11.50
8.00	14.00
10.00	16.00
15.00	27.50
16.00	33.00
21.00	49.00



GENERAL LOGISTICS

- **Hornet will be issued to Combat Engineers and SOF/Rangers.**
- **Hornet will be emplaced by Combat Engineers, SOF/Rangers, and Maneuver forces under Engineer supervision.**
- **Hornet will be issued from the Ammo Supply Point (ASP) as a Class V item to fill a unit's basic load or to meet special mission requirements.**
- **The Hornet basic load for a division is 780 munitions. However, due to limited procurement (about 400 munitions) plan on 260 munitions (18th Abn Corp only) or less as your basic load quantity.**



GENERAL LOGISTICS

- **Typically Hornets will be picked up in pallets at a Brigade Ammo Transfer Point (ATP) by the organic vehicles of the using unit.**
- **Delivered to a mine dump in vicinity of the employment site, Hornets will be unpacked, prearmed, loaded into emplacing vehicles, and transported to the emplacement site.**
- **Soldiers will carry/set up the Hornet munitions at each emplacement site IAW the operations order and file a minefield report under supervision of the Platoon Leader.**

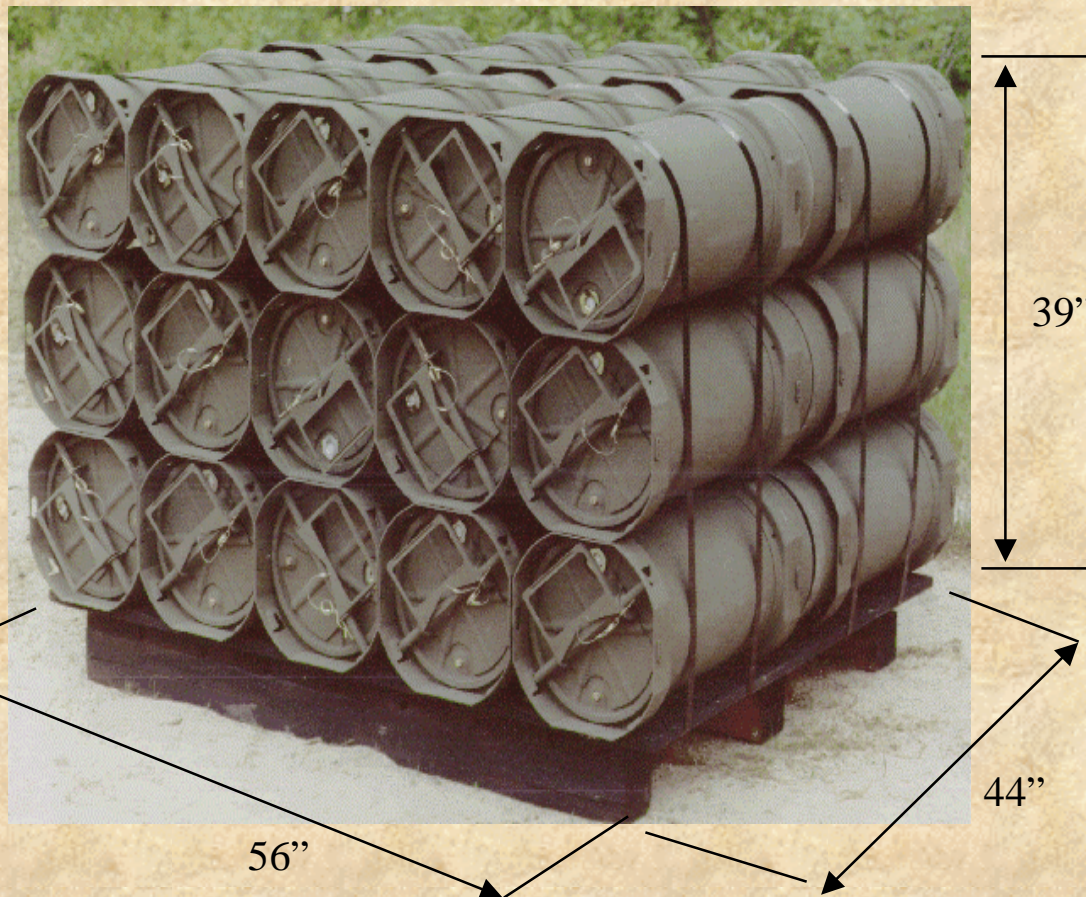


GENERAL LOGISTICS

Hornet Weight
35 lbs

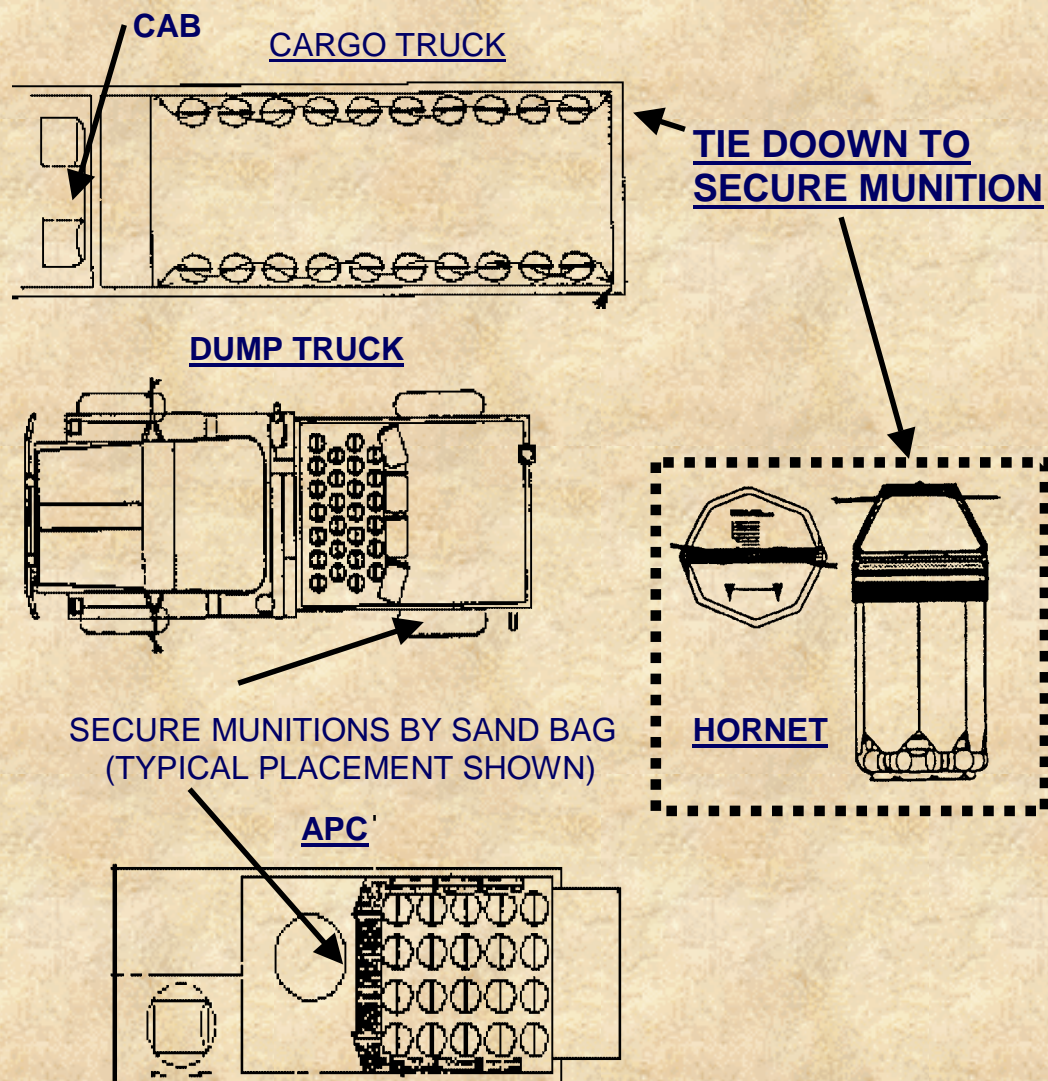
Container Weight
20.6 lbs

Total Pallet
Weight
1710 lbs





HORNET TIE DOWN





GENERAL LOGISTICS

- **Hornet is a non-repairable item.**
- **Operator level maintenance will be limited to inspection for obvious damage and cleaning.**
- **Depot level maintenance will be limited to replacement of battery packs every 12 years.**



EMPLOYMENT ROLES

- **CLOSE OPERATIONS**
- **DEEP OPERATIONS**
- **REAR OPERATIONS**
- **EARLY ENTRY/CONTINGENCY OPERATIONS**



CLOSE OPERATIONS





DOCTRINE

CLOSE OPERATIONS

- **Used to reinforce tactical obstacles.
(Volcano, Conventional minefields)**
- **Function as independent obstacles.
(Gauntlet, Area Disruption)**
- **Reduce threat mobility and disrupt attacks.**
- **Increase effectiveness of friendly fire.**
- **Disable and destroy threat vehicles.**
- **Protect flanks.**



DOCTRINE

CLOSE OPERATIONS

- **In the reinforcing role, Hornet will destroy threat breachers and force the remaining threat force to suffer the consequences of attempting to penetrate intact bottom attack minefields.**
- **When employed independently in a gauntlet or area disruption obstacle Hornet can destroy threat vehicles and disrupt threat attacks.**



DOCTRINE

CLOSE OPERATIONS

- **Hornet can be used to enhance the effectiveness of direct and indirect fires by retarding the movement of the threat.**
- **Acts as an economy of force measure by requiring fewer over watch forces.**





DEEP OPERATIONS





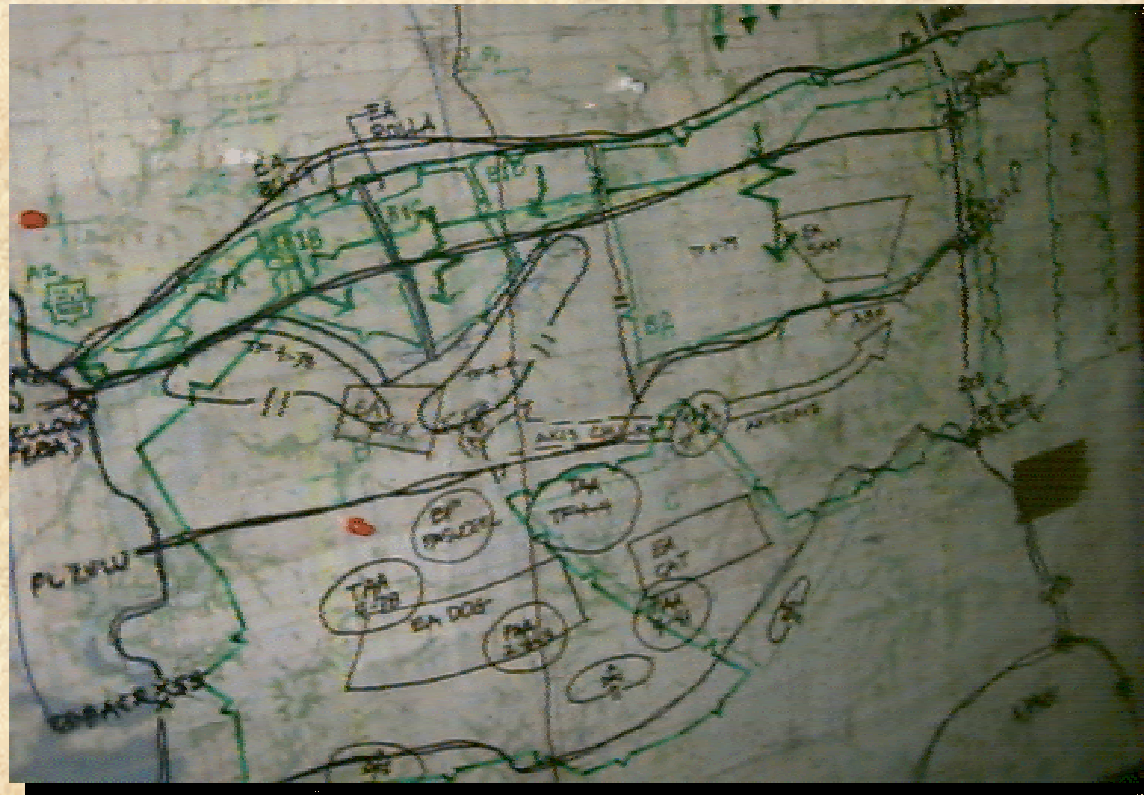
DOCTRINE

DEEP OPERATIONS

- **Hornet is used in the gauntlet mode to disrupt and delay threat second echelon forces, resupply operations, and key lines of communication.**
- **May be used at C2/Logistics sites to disrupt enemy operations.**



REAR OPERATIONS





DOCTRINE

REAR OPERATIONS

- **Emplaced along key routes.**
- **Emplaced in preparation for possible retrograde operations.**



EARLY ENTRY OPS





DOCTRINE

EARLY ENTRY OPERATIONS

- **Provides an additional munition to supplement light forces.**
- **Best use will be in the Gauntlet mode.**
- **Employed along high speed avenues of approach.**
- **Buys time and space.**



DOCTRINE

EARLY ENTRY OPS

- **An Airborne Engineer Platoon can carry up to 15 Hornets in during the initial assault (or more if heavy drops or door bundles are used).**
- **Hornets can be employed to expand the security area out from the lodgment during cordon and search operations.**
- **Hornet will help in securing a Flight Landing Strip (FLS) and to set up armor ambushes.**
- **Hornets can be air dropped right to the mission site, or employed via rough terrain jumping.**



HORNET

TACTICAL EMPLACEMENT

- REINFORCE A CONVENTIONAL OR SCATTERABLE MINEFIELD
- AREA DISRUPTION OBSTACLE
- GAUNTLET OBSTACLE
- DEEP EMPLOYMENT BY SOF/RANGERS





REINFORCE A CONVENTIONAL MINEFIELD

- Engineers site and mark the minefield to include the conventional rows and the Hornet rows.
- Marking must be completed before placing munitions.
- Install the conventional mines first and lay out a safe lane perpendicular to the conventional minefield.
- Hornet pallets are picked up at BDE ATP and transported to the mine dump.
- Hornet munitions are removed from the pallet and unpacked.
- Munitions are pre-armed.
- Munitions are loaded into vehicles and tied down.



REINFORCE A CONVENTIONAL MINEFIELD

- **Emplacement vehicles move to first emplacement site in their row.**
- **Hornets are laid in two staggered rows, 100 meters apart.**
- **Each Hornet will be spaced 100 meters apart.**
- **Hornet obstacle will be 50 to 100 meters in front of the conventional minefield.**
- **An emplacing and arming soldier dismount the vehicle.**
- **Emplacing soldier emplaces Hornet, returns to vehicle with marking stake (if used).**
- **NCOIC records information on strip feeder report**

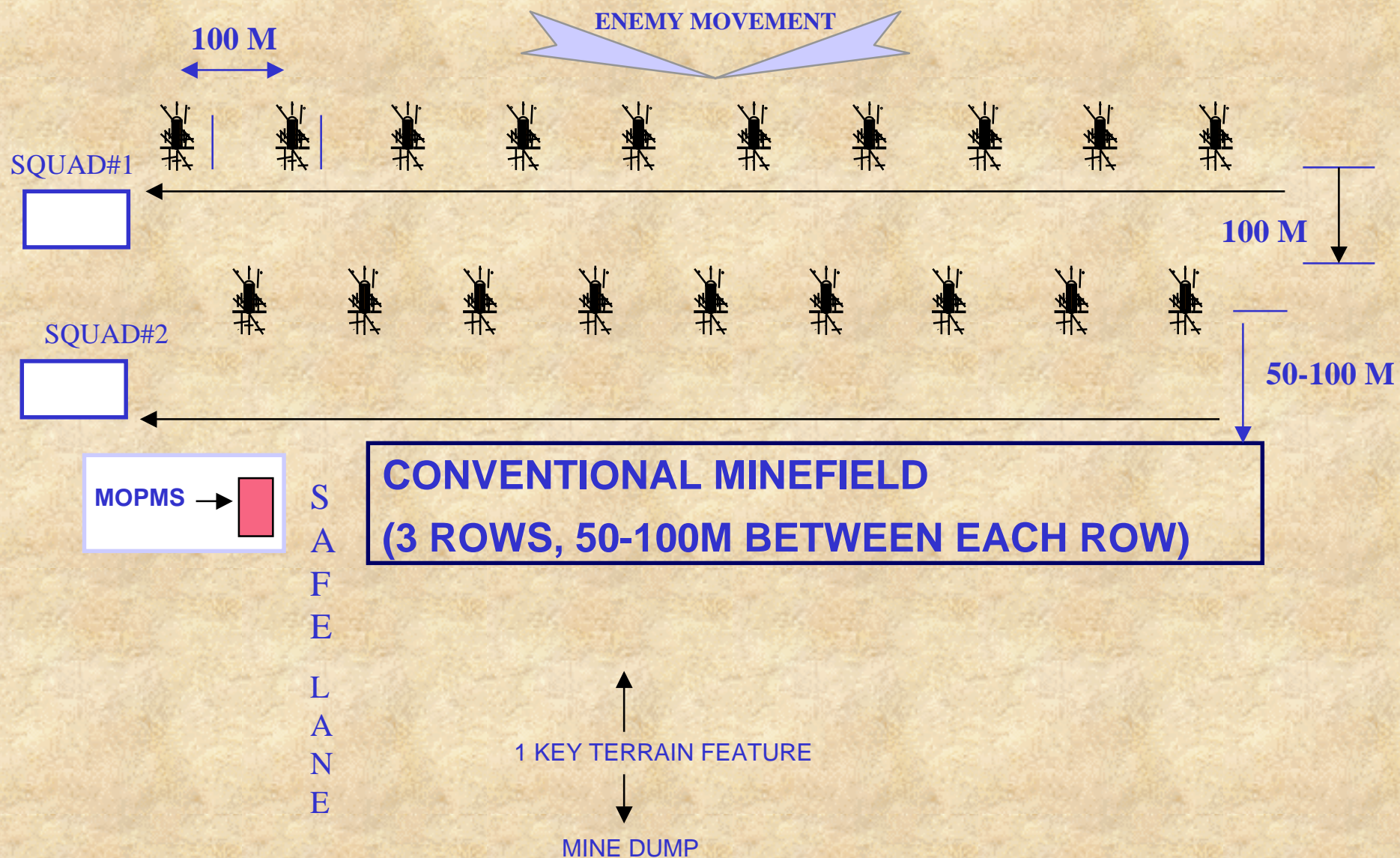


REINFORCE A CONVENTIONAL MINEFIELD

- **Arming soldier performs commit to arm procedures, returns to vehicle with cover and handle band, and vehicle travels to the next emplacement site.**
- **Emplacement should progress toward safe lane.**
- **After last Hornet is armed, vehicle exits via safe lane.**
- **Vehicle travels at least 360 meters away from the nearest Hornet, but less than 2000 meters from the furthest Hornet.**
- **Wait for the remote safe separation time (30 - 36 minutes) from the last Hornet committed to arm.**
- **Hornets then may be final armed using the M71 RCU.**

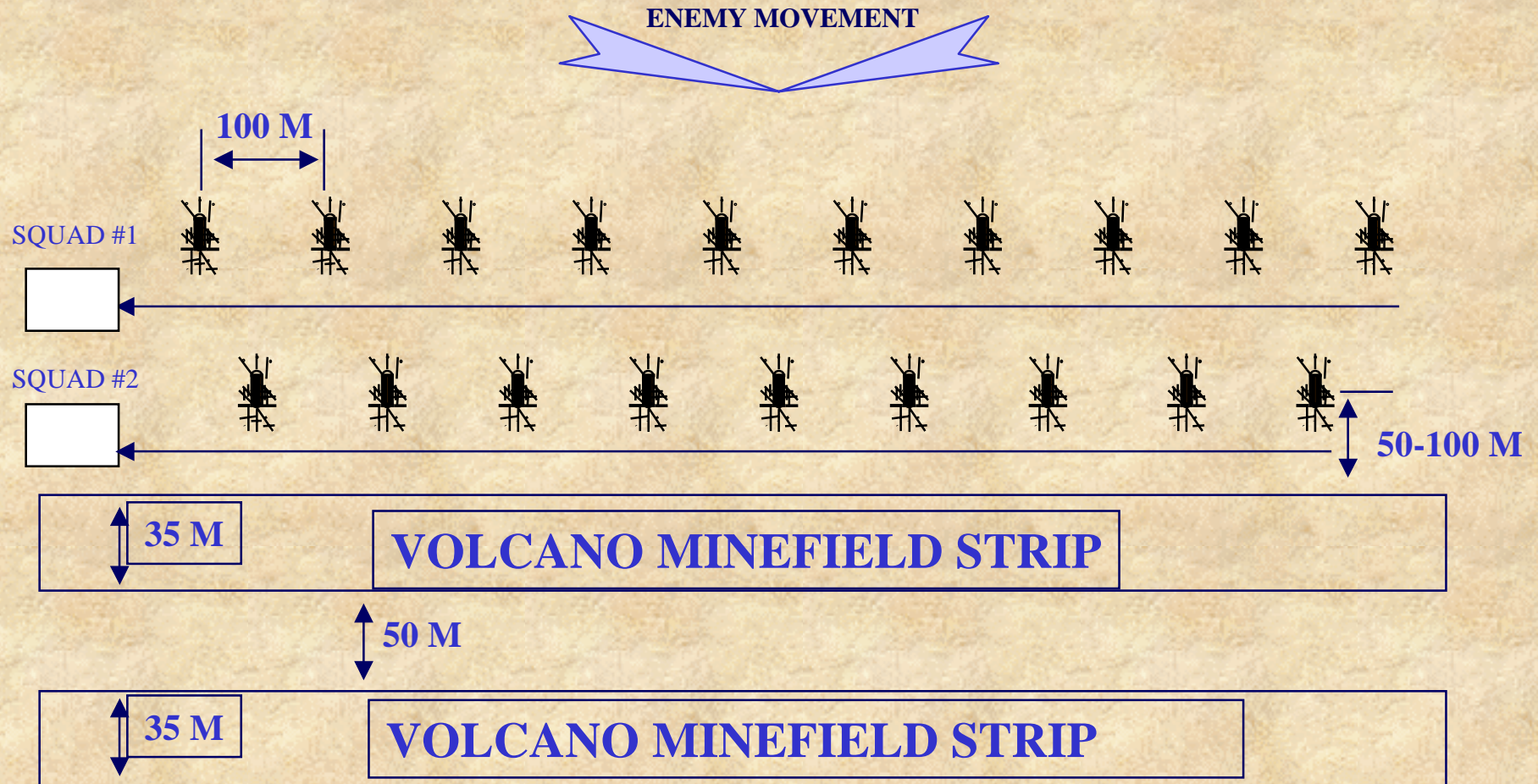


HORNET EMPLOYED TO OVERWATCH A CONVENTIONAL MINEFIELD





HORNET EMPLOYED TO OVERWATCH A VOLCANO SCATTERABLE MINEFIELD





When Hornets are employed to reinforce a VOLCANO minefield, the Hornets must be employed first.

NOTE: TO ENSURE THE VOLCANO DISPENSING VEHICLE HAS SUFFICIENT TIME TO REACH THE 360 METER SAFE SEPARATION DISTANCE, VOLCANO DISPENSING SHOULD BEGIN NO LATER THAN 20 MINUTES AFTER THE FIRST HORNET'S ARMING SWITCH HAS BEEN THROWN MINUS THE VOLCANO DISPENSING TIME.



AREA DISRUPTION OBSTACLE

- Used to disrupt the enemy's approach to the main defensive area and piece meal the enemy.
- Intended to disrupt and reduce the advancing threat force.
- Encourage follow on forces to seek an alternate route.
- Mission will be performed by an Engineer platoon.



AREA DISRUPTION OBSTACLE

- **Hornet area disruption obstacle will cover a 1 km x 1 km area.**
- **Obstacle will consist of 20 Hornets employed in 5 clusters of 4 Hornets each.**
- **Individual Hornets will be emplaced approximately 100 meters apart.**
- **Clusters will be arranged in a random X pattern.**
- **Munitions are unpacked at the mine dump.**
- **Munitions are pre-armed at mine dump or intermediate area depending on tactical situation.**
- **Sighting will be completed before emplacing the Hornet, Sighting party will also record the location of each Hornet and complete the DA Form 1355**



AREA DISRUPTION OBSTACLE

- Two squad vehicles go to emplacement sites for the two clusters closest to the enemy.
- Each squad begins emplacement by moving towards the opposite corner of the obstacle, crossing paths at the middle of the “X”, NCOIC’s will record emplacement on strip feeder reports to verify location with the sighting/recording party.
- Area Disruption obstacles will typically be employed using the remote arming method. After the last Hornet is emplaced, vehicle travels at least 360meters away from the nearest Hornet, but less than 2000 meters from the furthest Hornet.
- Wait for the remote safe separation time (30 - 36 minutes) from the last Hornet committed to arm.
- Hornets then may be final armed using the M71 RCU.
- Individual Clusters are 100 meters apart



AREA DISRUPTION OBSTACLE

If time is critical, the Area Disruption obstacle may be employed using the manual arming method, under certain conditions:

- * Daylight hours/good visibility**
- * Soldiers in MOPP 0**
- * Prior terrain reconnaissance must be done to ensure there are no mobility restrictions (i.e., terrain must be relatively flat with minimal vegetation, to support driving in a straight line) .**

Due to the short manual arm safe separation time (5-6 minutes), emplacement must be done as a "Dispense and Roll" operation to ensure vehicles can drive to the minimum safe separation distance (meters) from any armed Hornets.



HORNET AREA DISRUPTION OBSTACLE

SQUAD#1



SQUAD#2



ENEMY

1000 Meters

CLUSTER MARKERS

20 HORNETS

(5 CLUSTERS, 4 HORNETS PER CLUSTER)



GAUNTLET OBSTACLE

- Emplaced along likely threat high speed avenues of approach and at choke points.
- Normally performed by an Engineer platoon.
- Typical gauntlet will have 9 clusters, each containing 3-6 Hornets, for a total of 45-54 Hornet munitions.
- Gauntlet is METT-T Dependent
- Separation between clusters varies from 360 to 2000 meters.
- Munitions in each cluster are emplaced at 50 meter intervals on alternating sides of the road, and 25-50 meters from the road centerline. Greatest effectiveness is 25 meters from the road centerline, unless expected targets or intent is to attack T-72 tanks--then 50 meters from the road centerline is best.
- 2000 meter max range for (RCU) that's why you use manual mode.



GAUNTLET OBSTACLE

- Unpack Hornets at mine dump.
- Pre-arm Hornets at mine dump or intermediate location (or pre-armed at emplacement site).
- Move to emplacement site for first cluster (nearest to enemy side of the obstacle).
- Emplace Hornets starting on friendly side of the cluster.
- One soldier dismounts, receives a pre-armed Hornet, and proceeds to the first emplacement site (unless munition is to be pre-armed at the emplacement site).
- Vehicle proceeds to next emplacement site, procedure is repeated.



GAUNTLET OBSTACLE

- After all the emplacing soldiers are dropped off, the vehicle turns around and stops even with the last Hornet in the cluster (nearest to the enemy).
- Squad leader waits until last emplacing soldier reaches his site.
- Squad leader gives signal (audible or visual) to have each emplacing soldier throw the arming switch.
- Emplacing soldiers return to road/approach to be picked up by the emplacing vehicle.
- Driver will quickly travel to a safe standoff distance of at least 360 meters from the nearest Hornet. All Hornets arm automatically in 5-6 minutes. **** Remember to use the PLGR to ensure the distance is not breached.**



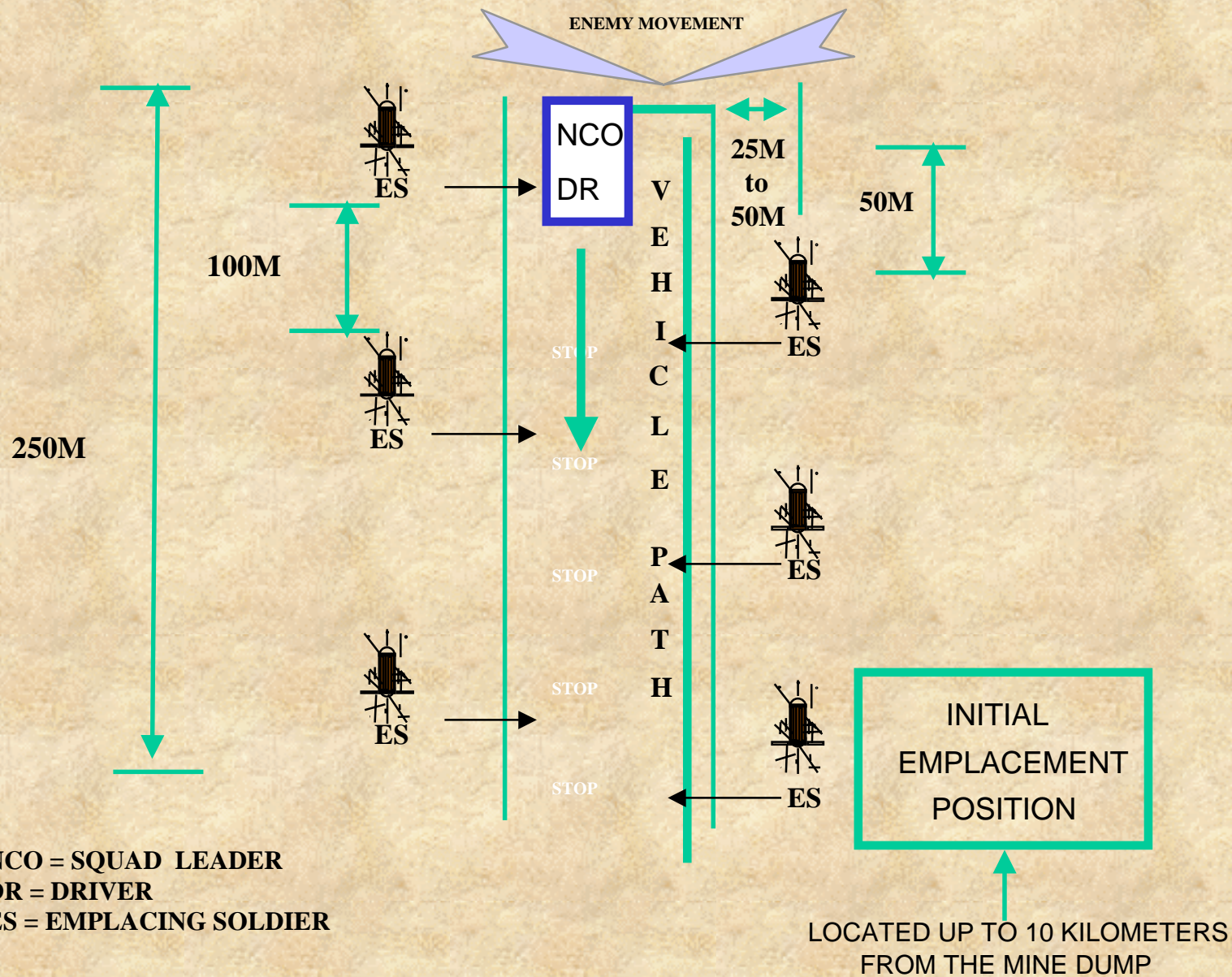
GAUNTLET OBSTACLE

- **Emplacement of the next cluster will begin.**
- **Remember: Each cluster should be 360 to 2000 meters apart. Driver should be careful not to come within 360 meters of the previous cluster when turning the vehicle around.**
- **Each squad in the platoon will emplace 3 clusters in the gauntlet (9-18 total Hornets).**
- **All Hornets are normally armed in the manual mode, but can be armed remotely based on METT-T.**
- **To increase effectiveness, gauntlet clusters should be employed in conjunction with other obstacles (e.g. road craters, abatis, etc.), on uphill grades or near curves in the road. Any place where the enemy will have to slow down.**



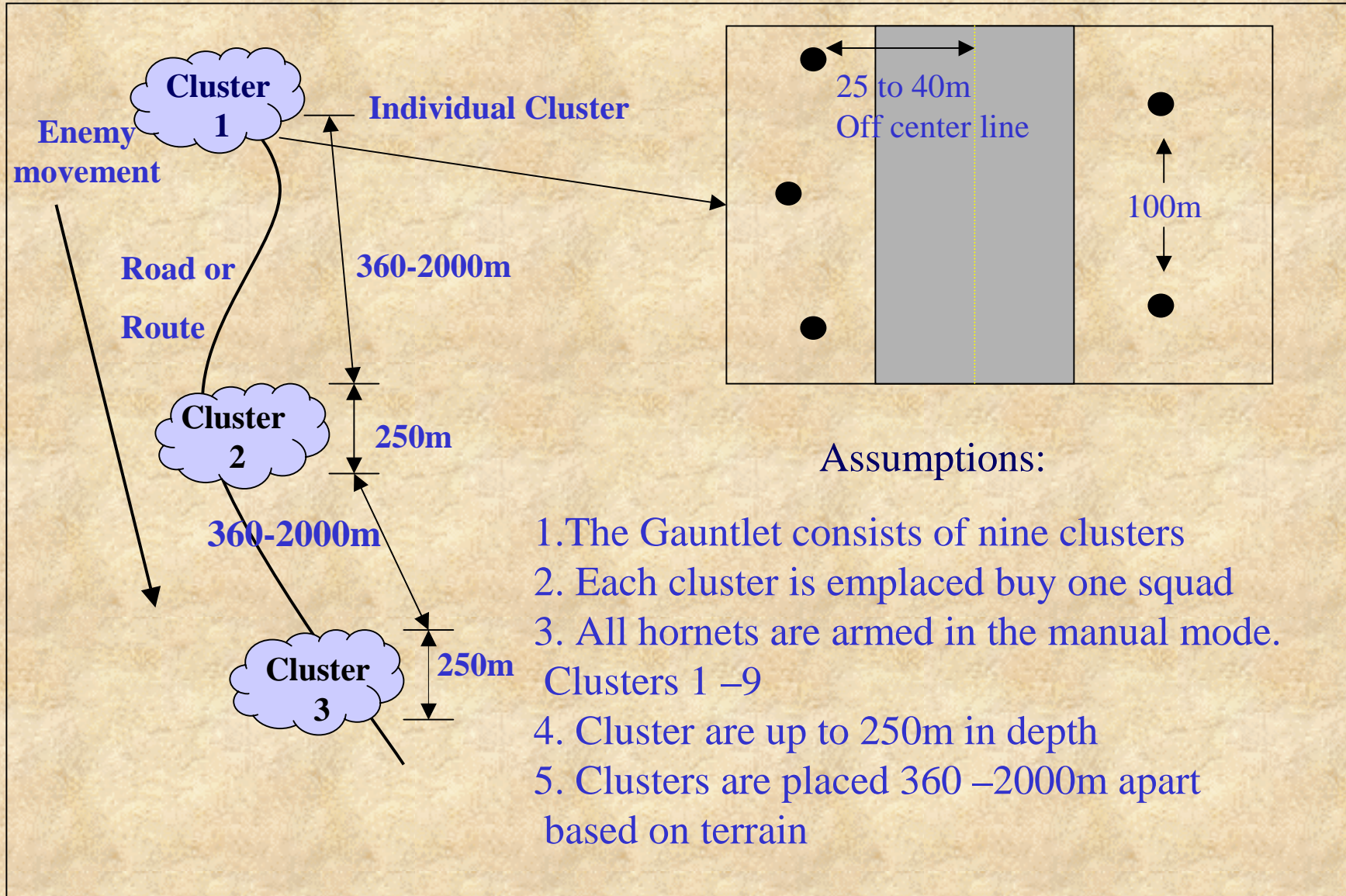
HORNET GAUNTLET

(MISSION PROFILE FOR ONE CLUSTER)





HORNET GAUNTLET





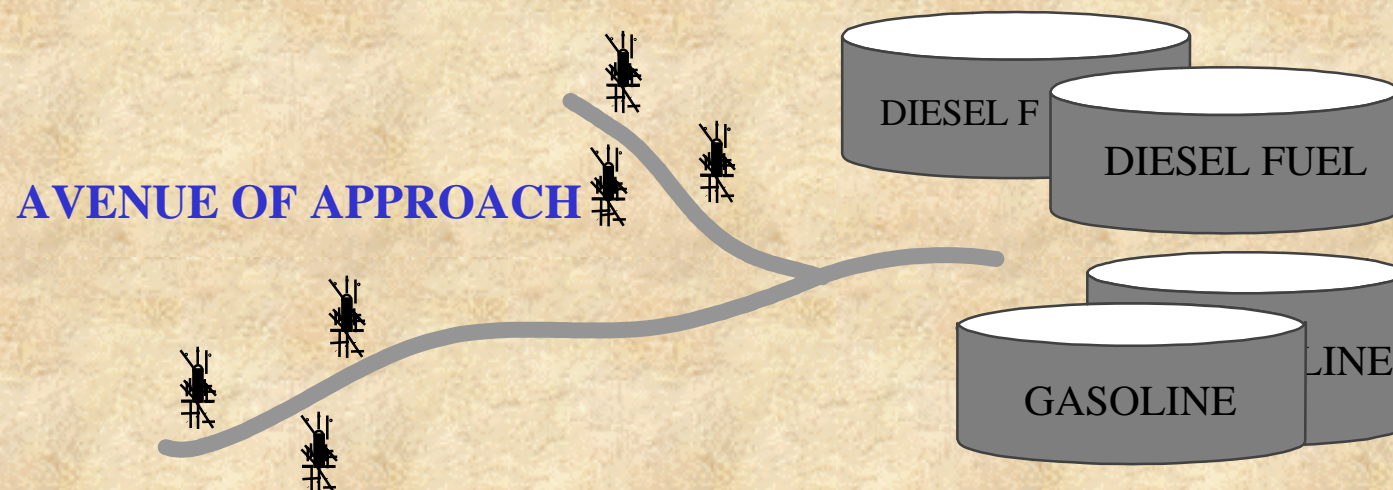
DEEP EMPLOYMENT OF HORNETS BY SOF/RANGERS

- **The mission to emplace Hornets deep, as an interdiction weapon, will be performed by Special Operation Forces (SOF) / Rangers.**
- **A typical mission will require insertion of a unit ranging from a six man team to a company size element.**
- **The number of Hornets carried by these units will depend on the mission and mode of insertion.**

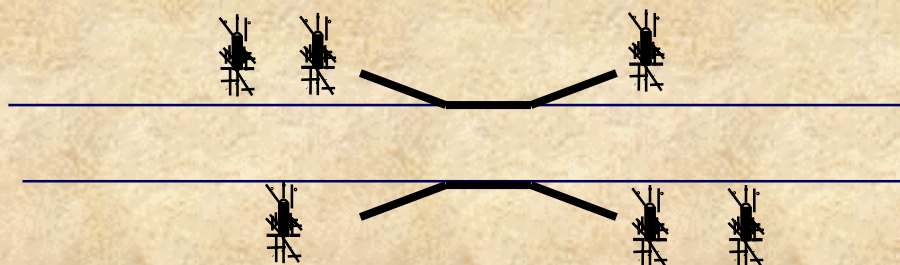


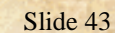
HORNET EMPLOYED DEEP BY SOF/RANGERS

HORNETS EMPLOYED TO SUPPORT A RAID ON AN ENEMY TARGET



HORNETS EMPLOYED AT BRIDGES/CHOKE POINTS







HORNET SELF-DESTRUCT (SD) TIMES

<u>SETTING</u>	<u>SD TIME</u>	<u>SD START</u>
1	4 HRS	3 HRS 36 MIN
2	48 HRS	43 HRS 12 MIN
3	5 DAYS	4 DAYS 12 HRS
4	15 DAYS	13 DAYS 12 HRS
5	30 DAYS	27 DAYS



CAMOUFLAGE AND CONCEALMENT

- The best camouflage and concealment for the HORNET is tall grass and brush.
- The HORNET can be partially buried, placing the HORNET in a hole degrades it's performance and should only be done when the HORNET cannot be covered by fires or protected from tampering by dismounted enemy.
- The depth of the hole must not exceed 4 inches, because the acoustic sensors must be above ground level.
- The hole must be at least 36 inches wide and flat enough to support the munition and must not restrict the HORNET's ability to rotate and tilt its body and fire the sublet.



REPORTING, MARKING AND RECORDING

1. MARKING

- a) Marking must be completed before the first HORNET is placed. (Area Disruption, and reinforcing munition fields)
- b) The marking fence will be no closer then 150 meters from the nearest HORNET

2. REPORTING

- a) A SCATTMINWARN is required for all HORNET munitions fields
- b) Gauntlet obstacles will be reported using a scatterable munition report.

3. RECORDING

- a) Area Disruption, and reinforcing munition fields will be recorded / reported on DA Form 1355 with the distance and azimuth shown to each HORNET in block 16.



SAMPLE SCATMINWARN

Line No	Message
Alpha	Emplacing System ¹
Bravo	AT / AV (yes or no)
Charlie	AP (yes or no)
Delta	Aim Point ²
Echo	Size of Safety Zone ³
Foxtrot	DTG of Life Cycle ⁴

1- Emplacing System Will Be HORNET- Hand Emplaced

2- Aim Point Will Be Center Mass of Each Cluster For HORNET Gauntlet Obstacle

3- Safety Zone will be a 360 Meter Circle From outer most Hornets in the Clusters

4- Date Time Group From Planed Arm Time to Planed Self Destruct Time

NOTE: REPORT WILL BE GIVEN FOR EACH CLUSTER



SCATTERABLE MUNITION REPORT

Line No	Information Required	Data
1	Approving Authority	<i>CDR 1st In Div</i>
2	Target / Obstacle Number	<i>I001-C3D-HH01X</i>
3	Type of Emplacing System	<i>Hand Emplaced by Engineer Platoon</i>
4	Type of Mines / Munitions	<i>Anti-Tank / Anti-Vehicular HORNET</i>
5	Life Cycle	<i>DTG of Deployment and Self Destruct</i>
6	Aim Point of Munition Field	<i>Center mass Grid of Each Cluster</i>
7		
8		
9		
10		
11		
12		
13		
14		
15	Size Safety Zone From Aim Point	<i>300 Meters (each Cluster)</i>
16	Unit Emplacing Munitions / Report Number	<i>1 En Bn A Co 1st Plt</i>
17	Person Completing Report	<i>SFC Villa</i>
18	DTG of Report	<i>Date/Time Group Report Was Completed</i>
19	Remarks	<i>Cluster Number 1 ect...</i>



STRIP FEEDER REPORT

STRIP FEEDER REPORT FOR STRIP/ROW _____					
Type of Mine	Number of Mines	AHDs by Cluster	IOE-Strip Azimuth	Turning-Point Azimuth	Remarks